

[X]Stream

User's Manual - Version 1.01 - December 2006

Archive/Storage & Gateway Solutions



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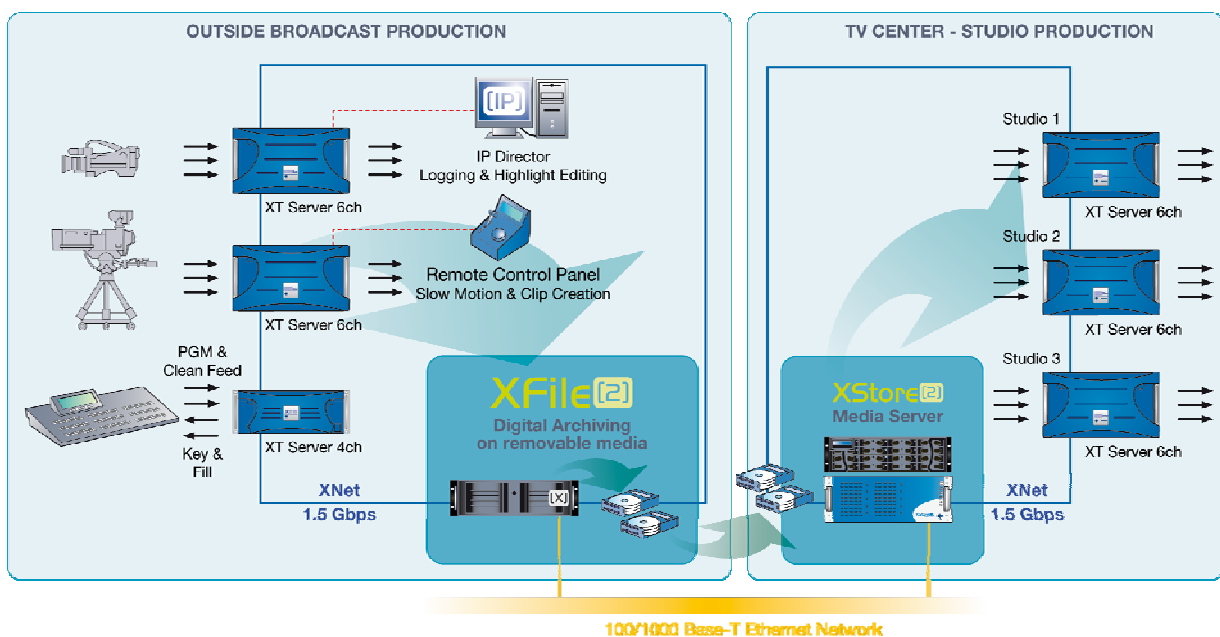
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Introduction

DIGITAL ARCHIVING ON REMOVABLE MEDIA

The XFile/XStream has access to all footage recorded on XT6U, XT4U, AirBox and SpotBox servers through the SDTI network. When a clip is created on one of the servers, a copy is automatically transferred to XFile/XStream.

This copy is a background process, and as a lower priority on the network compared to real-time transfers between servers for remote playback, in order not to disturb the live production in any way. If the network is not very busy, the transfer to the removable media can be performed several times faster than real-time. As soon as real-time transfers are required on the network, the backup process is slowed down to make enough bandwidth available to guarantee these new requests.



Each REctrain is saved as a separate file on the removable media, including video, audio and time code information. The transfer between an XT6U or XT4U to the XFile/XStream is a data transfer, i.e. no decoding/encoding process takes place at any point, preserving the original quality of the footage, including super-motion character if applicable.

The XFile/XStream is equipped with 2 removable media. Each removable media has a capacity of 500GB or 32 hours of footage at standard bit-rate. More XFile/XStream stations can be inserted on the network if more archive copies are required.

The combination of XT4U, XT6U, AirBox and XFile/XStream, all interconnected on XNet, forms the basic architecture required to move from a mostly tape-based production to a disk-based environment.

Configuration

Hardware

The XFile/XStream software is installed in a workstation operating under Windows XP Pro. The minimum system requirement is Intel Core2 Duo E6300 Processor, Intel Motherboard with DRAM 1GB and an EVS PCX board.

The hardware components are housed in a 3U rack cabinet equipped with 2 x ATA 133 250GB or 500GB Mobile Cartridges.



The XFILE/XSTREAM platform is included in the XNet in which XT6U, XT4U SpotBox and AirBox servers interact via SDTI network.

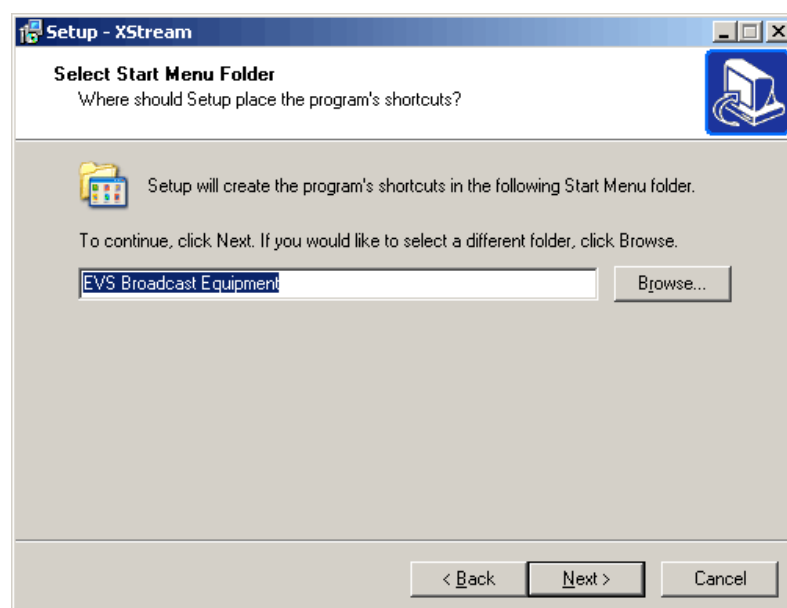
Software installation

First, run the XFILE INSTALLER in order to install the drivers and to build the registry.

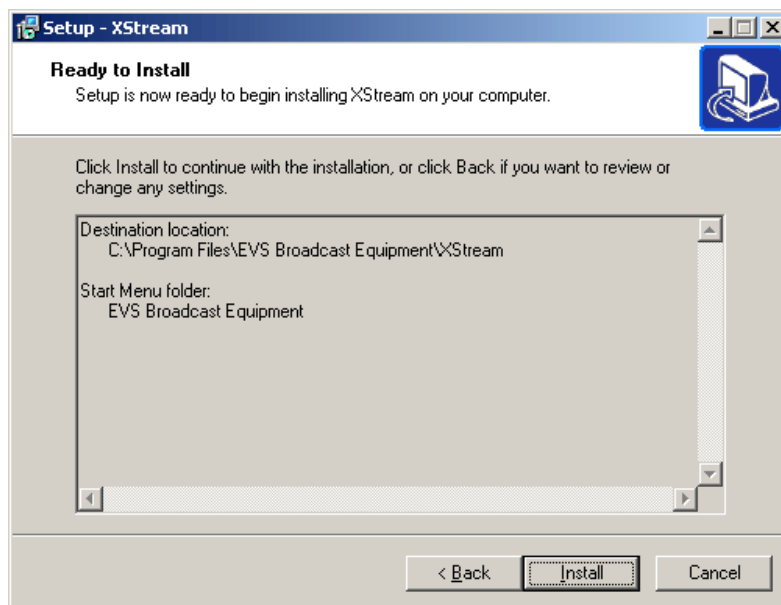
Then, run the XSTREAM INSTALLER and follow the steps of the Setup Wizard:



1. Select the start menu folder to place the application's shortcuts;



2. Then press INSTALL to start the installation of the main files



A progress bar shows the activity of files transfer.

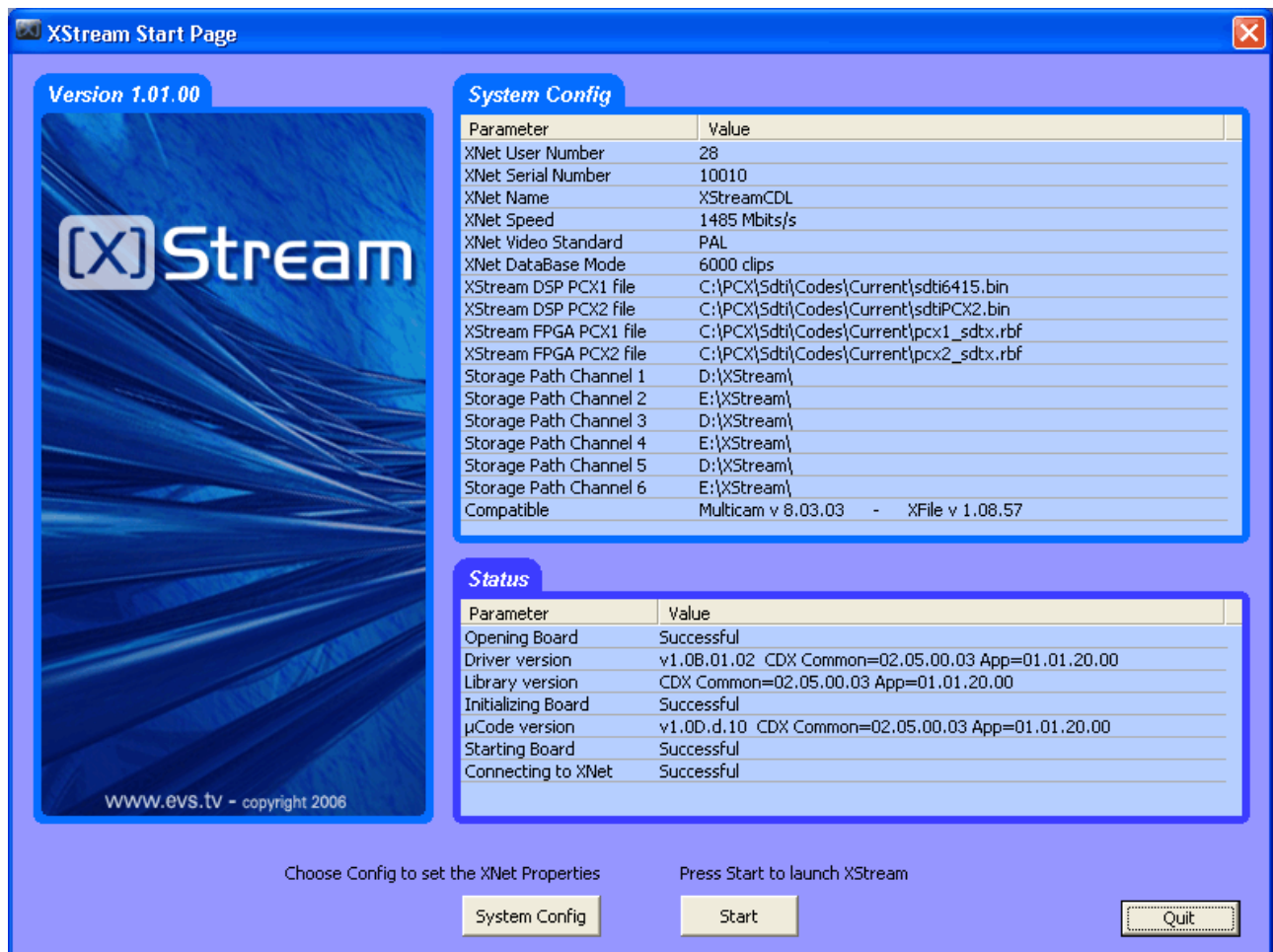
3. Then press FINISH for ending the installation process.



The XSTREAM installation is successfully completed and a XSTREAM shortcut is saved to your desktop.

Software management

Start-up



At first start the upper part of the window displays:

SYSTEM CONFIGURATION AREA:

This field displays the current parameters of the system. Some relevant parameters are required to connect to the XNet.

If an error message is displayed facing one of the parameters, click on the 'System Config' button to enter the System configuration window.

System Config	
Parameter	Value
XNet User Number	28
XNet Serial Number	10010
XNet Name	XStreamCDL
XNet Speed	1485 Mbits/s
XNet Video Standard	PAL
XNet DataBase Mode	6000 clips
XStream DSP PCX1 file	C:\PCX\Sdti\Codes\Current\sdti6415.bin
XStream DSP PCX2 file	C:\PCX\Sdti\Codes\Current\sdtiPCX2.bin
XStream FPGA PCX1 file	C:\PCX\Sdti\Codes\Current\pcx1_sdtx.rbf
XStream FPGA PCX2 file	C:\PCX\Sdti\Codes\Current\pcx2_sdtx.rbf
Storage Path Channel 1	D:\XStream\
Storage Path Channel 2	E:\XStream\
Storage Path Channel 3	D:\XStream\
Storage Path Channel 4	E:\XStream\
Storage Path Channel 5	D:\XStream\
Storage Path Channel 6	E:\XStream\
Compatible	Multicam v 8.03.03 - XFile v 1.08.57

If the values are coherent, press 'START': the 'System Config' field is replaced by the 'Session Config' field.

SESSION CONFIG AREA

This field displays the current parameters and values saved to the descriptive metadata of the MXF header and added to each clip. This data can be modified for each session in the session configuration window.

Session Config	
Parameter	Value
Session Name	nbc
Session Date	09 November 2006
Session Sport	session_sport
Session Competition	session_competition
Session Competition Level	session_competition_level
Session Location	session_location
Session Team A	session_team_A
Session Team B	session_team_B

STATUS AREA:

The aim of this area is to check the hardware validity, the remaining capacity of disks and to verify the compatibility between the software, the drivers and the data recorded.

The system automatically starts the test processing. One after the other, the different stages of the boot sequence are displayed in the Status window.

If an error occurs during one stage, write the message down and contact EVS staff for support.

Status	
Parameter	Value
Opening Board	Successful
Driver version	v1.0B.01.02 CDX Common=02.05.00.03 App=01.01.20.00
Library version	CDX Common=02.05.00.03 App=01.01.20.00
Initializing Board	Successful
µCode version	v1.0D.d.10 CDX Common=02.05.00.03 App=01.01.20.00
Starting Board	Successful
Connecting to XNet	Successful

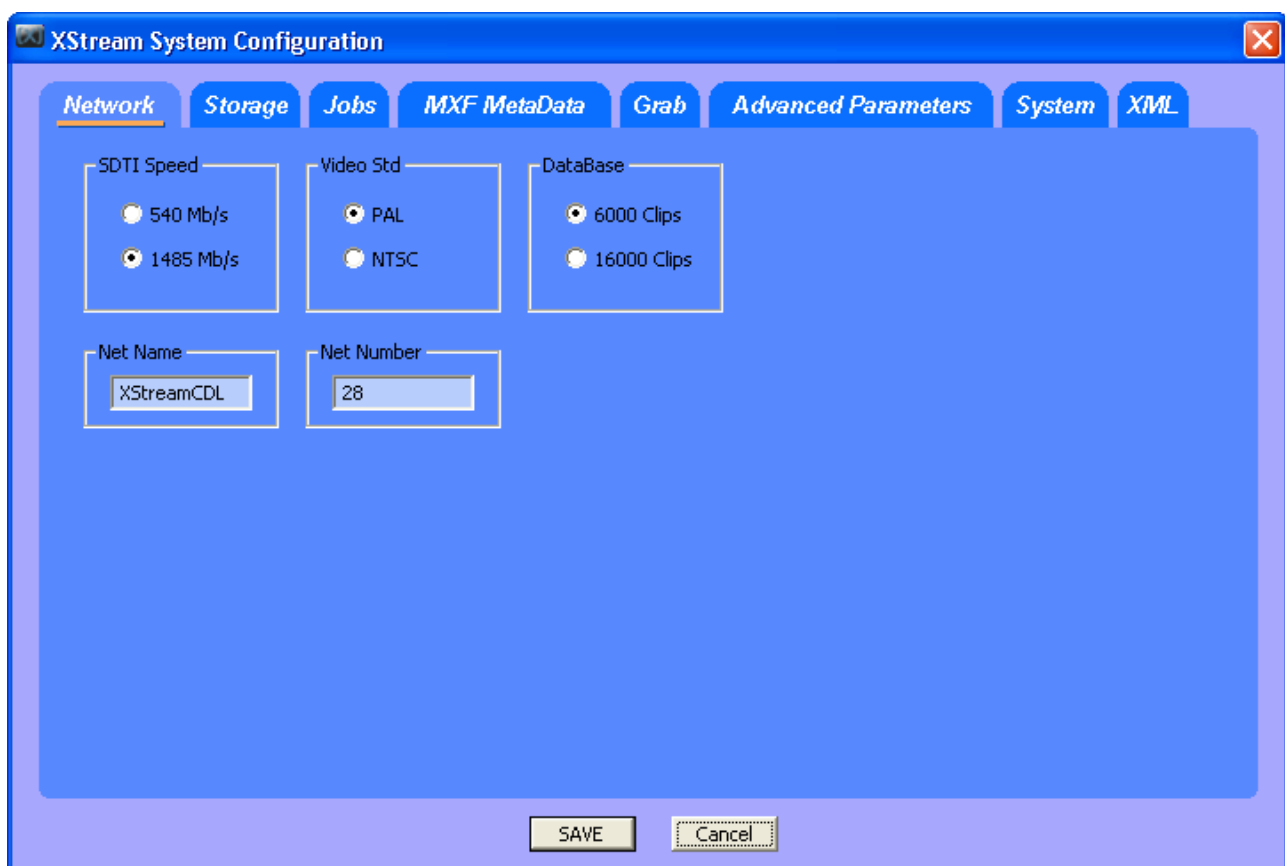
The last test is the connection to the XNet. If this stage is successful, the XStream is ready to operate. Press 'START' again to enter the application.

System configuration

The network tab in the system configuration window is only available for modifications from the start page before start-up: the network parameters are required to complete the boot sequence and to connect to the XNet.

During operations, this tab will be displayed in read-only mode for information.

NETWORK TAB



Note : The bandwidth, the video standard and the Database Size must be identical on all machines connected to the XNet. If one system is configured with a different bandwidth, video standard or database size, it will block the entire network.

SDTI speed : (540Mbps / 1485Mbps)
Selects the bandwidth of the network.

Video Standard: (PAL/NTSC)

Selects the video standard. NTSC format is also applicable for HD formats

Database: (6000/16000clips)

Select the maximum number of clips saved to the LSM database.

Net Name:

The Net name defines the machine name on the network. This name is user-defined and can exceed 8 characters, but only 8 characters will be visible from the XNet views. Entering a Network Name is not mandatory because a network number is automatically given to the system, but it is recommended to name the machines in order to easily identify all systems connected to XNet.

Net Number:

Range: [1 ... 29]

The Net number defines the machine number on the network. This number is user-defined.

STORAGE TAB

XStream System Configuration ** SDTI config read only ******

Storage

Number of disks

- ☐ 1 (Single path for all channel)
- ☒ 2 (CH1, CH3, CH5 -> Disk 1; CH2, CH4, CH6 -> Disk 2)
- ☐ 3 (CH1,CH4 -> Disk 1; CH2,CH5 -> Disk 2; CH3,CH6 -> Disk 3)
- ☐ Set path manually

In order to ensure the transfers we highly recommend to spread the charge through several disks

Path Channel 1: D:\XStream\ Browse

Path Channel 2: E:\XStream\ Browse

Path Channel 3: D:\XStream\

Path Channel 4: E:\XStream\

Path Channel 5: D:\XStream\

Path Channel 6: E:\XStream\

SAVE Cancel

Number of disks:

Selects the number of disks assigned to the channels to backup.



Important Note: In order to ensure the transfers we highly recommend to spread the charge to several disks.

Path Channel :

Enter the path to save files for each channels.

JOBS TAB

XStream System Configuration *** SDTI config read only *******

Network **Storage** **Jobs** **MXF MetaData** **Grab** **Advanced Parameters** **System** **XML**

Default Job Duration: 0 hour 1 min

Default Job Timing: ☐ PC Time
☒ Input's Time Code (Current Day Only!)

Select Primary Output Mode:

- ☐ EVS MXF ☐ Update CleanEdit
- ☒ IMX OP1a ☐ Update CleanEdit
- ☐ Quick Time ☐ FCP Optimization
- ☐ Transfer to AVID TM

Avid TM

Default TM Host Name: EVSDevice

Avid Media Type: ☐ OMF ☒ MXF

IMX OP1a format can only be used when XT[2] server is operating with IMX CODEC format in SD mode

CleanEdit DB

DSN Name:

DSN User:

DSN Password:

Format String

Select the Filename structure to modify:

- ☐ EVS MXF
- ☒ Quick Time
- ☐ IMX OP1a
- ☐ Avid Target Name

Available Items: %XTNAME = XT Name

Reset:

Format String: QT XStream %BDATE %TCIN - %XTNB %CAM

Sample: QT XStream 2006_12_08 10h05m00s00 - 22 A.mov

☒ Rename File if needed (Useful for %TCOUT) Inactive if Update CleanEdit parameter is set

Default Job Duration:
(default: 1 hour)

Default Job Timing
Select the time reference for the recording: PC Time or Input's Timecode
(This selection is valid for the Current Day)

Select Primary Output Format:
4 different output formats are available to save the files: EVSMXF, IMX OP1a (without metadata), Quick Time (with an optimization for FCP), and direct transfer to Avid Transfer Manager.
EVS MXF and IMX OP1a can be added to the CE database and the V/A file can be accessed into CE before the completion of the recording.



Important Note: IMX OP1a format can be used when XT[2] server is operating with IMX CODEC format in SD mode.

Avid TM

The RecTrains backed up can be automatically transferred to the AVID transfer Manager for conversion process to AVID file format. Place a checkmark in the 'Transfer All Clips Backed up' box and enter the Host name of the default Transfer manager.

Please contact EVS support for details regarding the configuration of AVID TM.

CleanEdit

The RecTrains backed up can be automatically inserted into the CleanEdit Database. Place a checkmark in the 'Update CleanEdit DB' box and enter the DSN name, user and password for the defined CE database.

Please refer to the CleanEdit documentation for more details.

Filename Format String

An automatic filename can be given to each file formats and can be different for each. Select the filename format string to modify: EVS MXF, IMX OP1a, Quick Time, AVID via TM.

The default MXF file is EVS_XSTREAM_backup date_Timecode shortIN_XT number_Camera.mxf. The filename is user-defined and can be modified by typing a generic term (i.e.: WC2006_Match03...) and/or by adding one or many available items:

%XTNAME	= XT Name
%XTNB	= XT User Number
%CAM	= Camera
%CAMLBL	= Camera Label
%TCIN	= TimeCode short IN
%TCOUT	= TimeCode short OUT
%IDMAT	= ID Material
%BDATE	= Backup Date
%BYEAR	= Backup Year
%BMONTH	= Backup Month
%BDAY	= Backup Day

MXF METADATA TAB

The screenshot shows the 'XStream System Configuration' window with the 'MXF MetaData' tab selected. The window title is 'XStream System Configuration **** SDTI config read only ****'. The tab bar includes 'Network', 'Storage', 'Jobs', 'MXF MetaData', 'Grab', 'Advanced Parameters', 'System', and 'XML'. The main area contains a table of parameters and their values, and a 'Session Sport' modification section.

Parameter	Value
Session Name	sports d'hiver
Session Date	10 January 2007
Session Sport	slalom
Session Competition	dames
Session Competition Level	2ème manche
Session Location	aspen
Session Team A	
Session Team B	

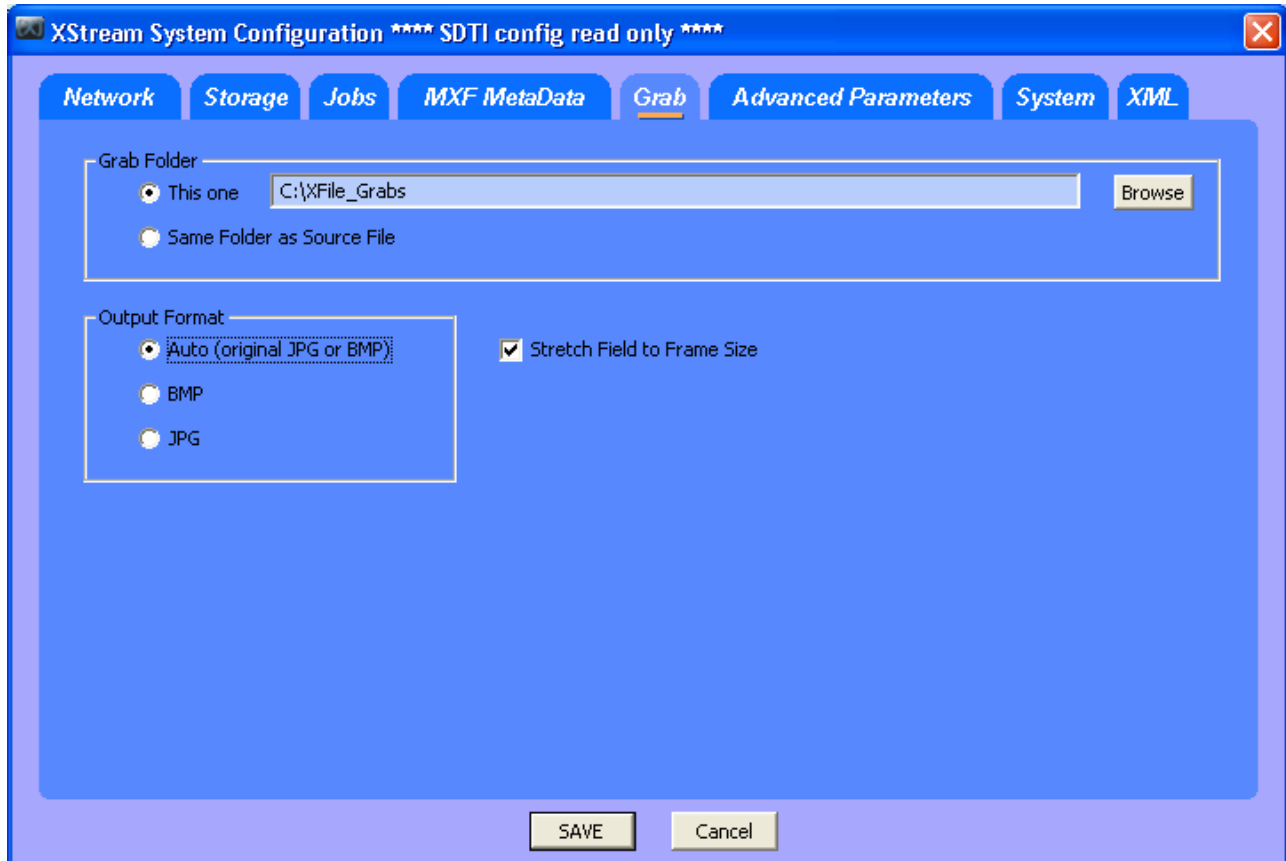
Below the table, there is a 'Session Sport' section with a text field containing 'slalom' and a 'Modify' button.

At the bottom of the window are 'SAVE' and 'Cancel' buttons.

This area displays the current parameters and values saved to the descriptive metadata of the MXF file.

This data is modifiable by clicking on the value to modify. The value appears in the text field edition. After the modification, press MODIFY to confirm the command.

GRAB TAB



The operator from the EDIT CLIP module is able to select a video frame/field and to grab a picture. Those pictures are created by the XFile/Xstream and stored on the disks of this XFile.

Grab folder

Select the destination folder to save the JPG/BMP files.

Stretch field to frame size

Enabling this option will automatically stretch the 'field image' to the original 'frame size'

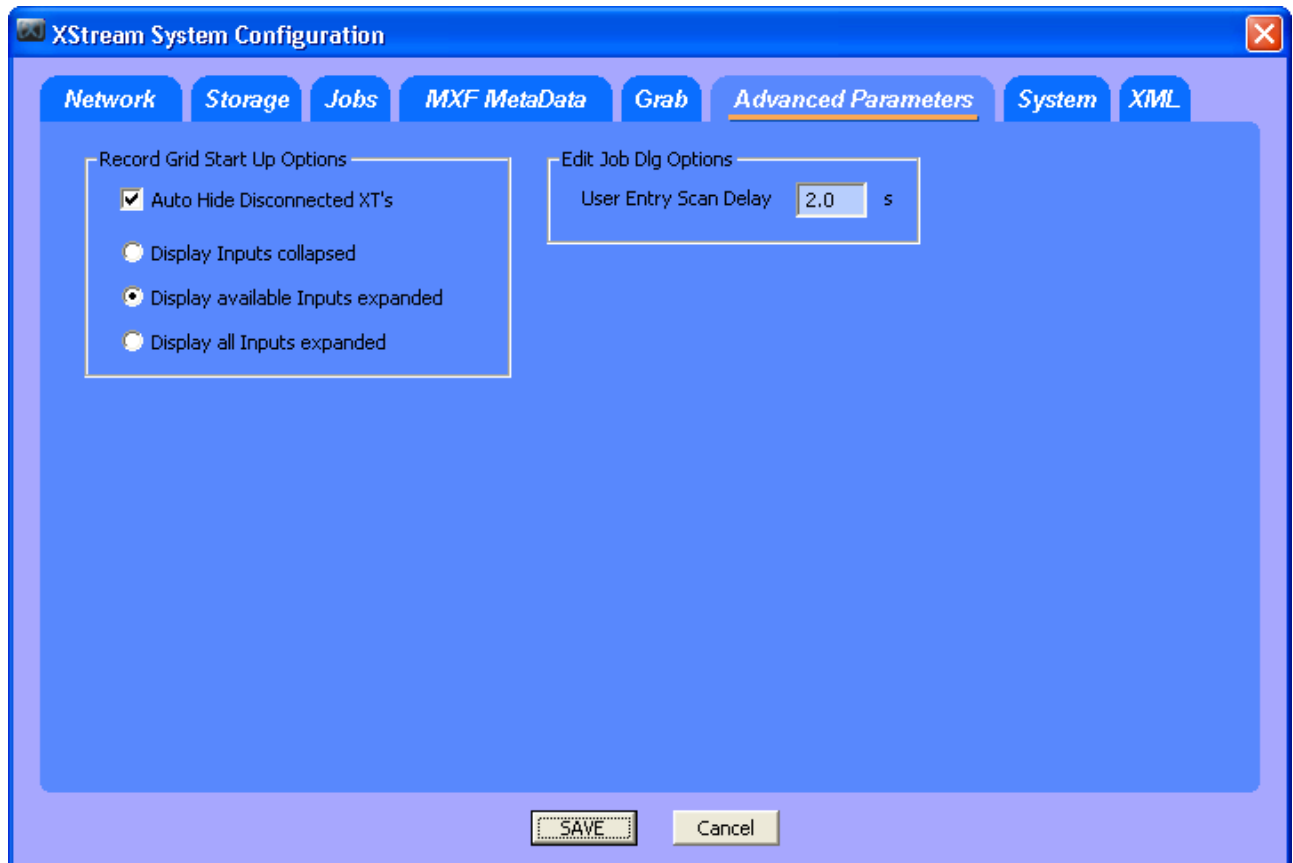
Output format

The automatic selection of the output format depends on the previous option. If the images are not modified by stretching the JPG format is defined and if the images are modified by stretching the BMP format is selected. The user can force the selection of one format.



Note : No compression artifact is added to this file creation process, so the original quality of the image is kept.

ADVANCED PARAMETERS TAB



The settings of the record grid are pre-defined in the Advanced Parameters window but of course can be modified during operations.

Auto Hide Disconnected XT's

Setting this option will only display the systems connected to the XNet at start up.

Cameras: (Display Inputs collapsed / Display available Inputs expanded / Display all Inputs expanded)

Selecting one of these items will change the display in the grid at startup.

Edit Job Dlg Options:

(Default: 2.0 sec)

The values entered in a text field (i.e. Timecode) are validated after 2.0 sec. This period can be modified via this parameter.

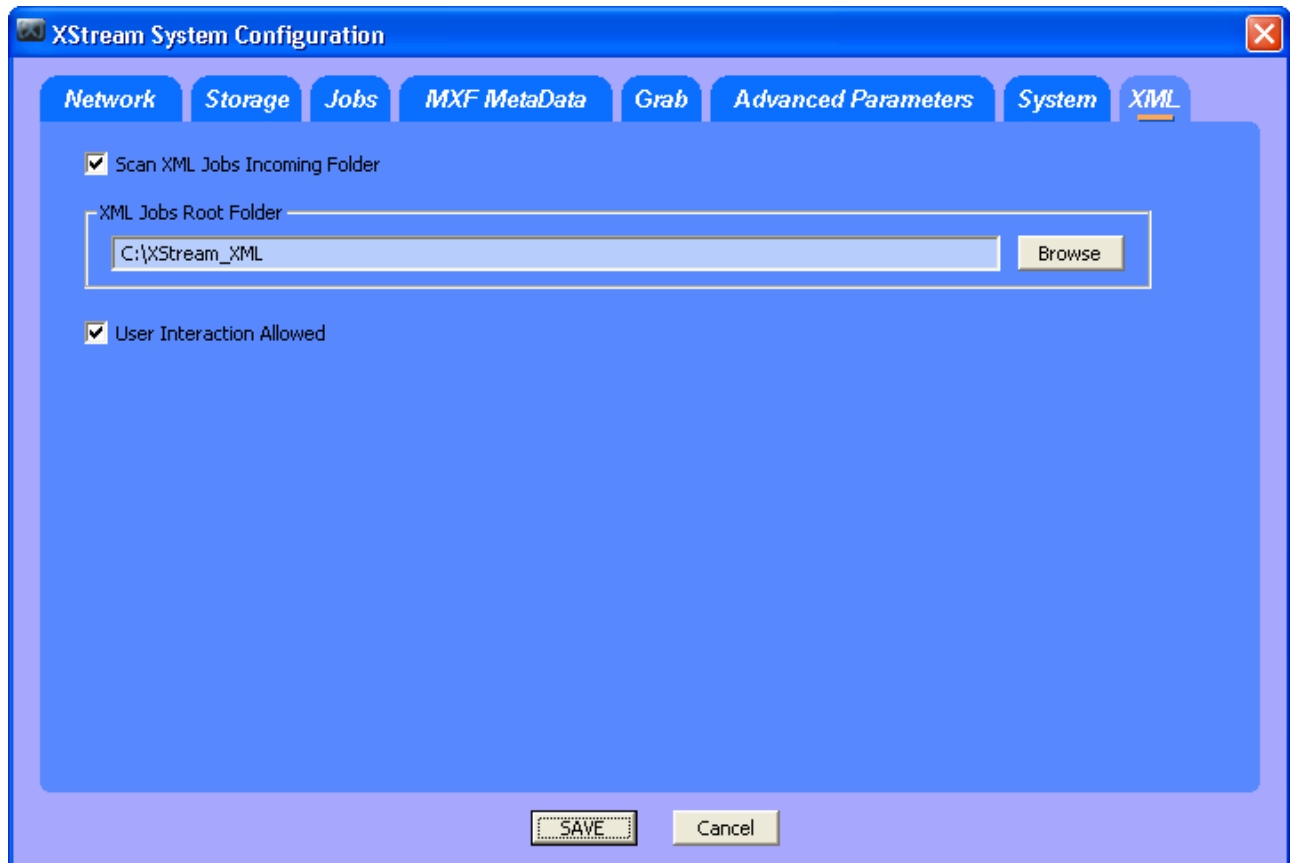
SYSTEM TAB

The screenshot shows a Windows-style dialog box titled "XStream System Configuration **** SDTI config read only ****". It features a tabbed interface with the following tabs: Network, Storage, Jobs, MXF MetaData, Grab, Advanced Parameters, System (which is the active tab), and XML. The System tab contains a "Serial Number" label and a text input field containing the value "10010". At the bottom of the dialog, there are two buttons: "SAVE" and "Cancel".

Serial Number:

The serial number of the system is defined during the first installshield process of XFILE/XSTREAM application and cannot be modified afterwards. The S/N is also written on the back plate of the mainframe.

XML TAB



A few operations made by XStream as backup RecTrains, update a RecTrains, cancel job are remotely controlled via XML file by a source application (IPDirector, Automation system, ...)

Scan XML Jobs Incoming Folder

Setting this option activates the automatic scanning process of the incoming folder dedicated to the XML files.

XML Jobs Root Folder

Selecting Jobs Root folder defines local folders to receive XML files. The XFile only scans its local folders.

4 Subfolders are automatically creates at start up when one of the XML modes is selected:

Jobs_Incoming : the source application posts XML files to request Jobs

Jobs_Scheduled : the XStream stores the XML Jobs scheduled

Jobs_In_Progress : the XStream stores the XML Jobs in progress

Jobs_Done : the XStream posts the XML files containing the final result of the Jobs

User Interaction allowed

Setting this option allows the operator to modify/delete/pause a job defined by an XML command.

Example of XML file for backup command:

```
<?xml version="1.0" ?>
- <EVS_XFile_Job_List>
- <EVS_XFile_Job>
    <Job_Id>7</Job_Id>
    <Job_Creation_Time>1152542579</Job_Creation_Time>
    <Job_Type>6</Job_Type>
    <Job_Src_User_Nb>1</Job_Src_User_Nb>
    <Job_Src_Clip_Nb>0</Job_Src_Clip_Nb>
    <Job_Src_Cam>A</Job_Src_Cam>
    <Job_Src_Field_TC>2400483</Job_Src_Field_TC>
    <Job_Src_TC_System>3</Job_Src_TC_System>
</EVS_XFile_Job>
</EVS_XFile_Job_List>
```

See XFile/XStream XML jobs documentation for complete description of XML files.

Software management

All operations of XStream are concentrated in a single screen.

The user-interface is divided into 4 areas:

- the information/menu area in the upper side of the screen,
- the scheduler grid,
- the channels area
- and the status area in the lower side.



INFORMATION / MENU AREA:

Press  to activate the Autobackup Mode. In this mode, the system acts automatically and backs up all files/clips according to the jobs defined in the scheduler grid.

NETWORK STATUS

The icon displayed in the upper side of the screen notices the current status of XNet:



Connection to XNet is successfully done



XStream is connecting



The video parameters are not correct. Please check the Network parameters into the System configuration window.



Connection to XNet failed



Local hardware failure has been detected

TRANSFER RATE

27.00 MB/s

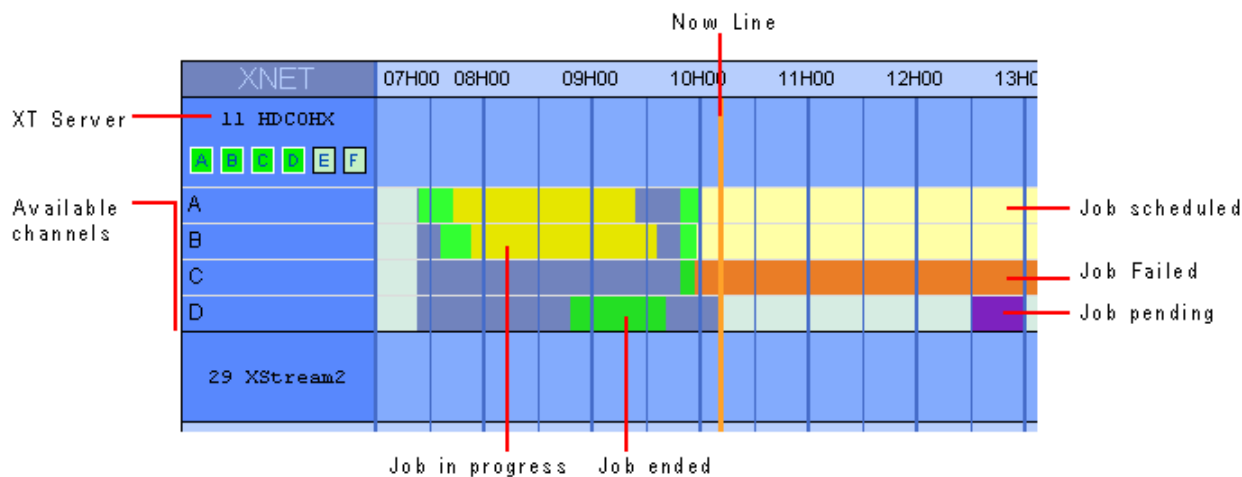
The counter displays the current transfer rate. An average of bit-rate for all operations is done in real-time.

TIME

10:31:57

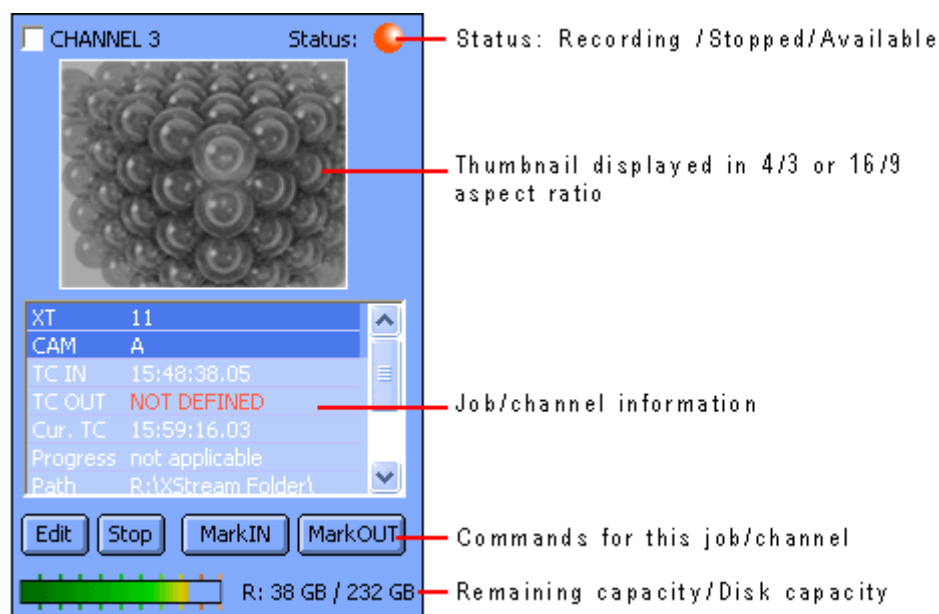
The current time of the XStream - not of the XNet time - is displayed in this field.

SCHEDULER GRID:



CHANNELS AREA:

This area is divided into 6 channel fields which displayed the same commands/information:



STATUS AREA:

The different operations are divided into different tabs.

General

Jobs Selected

Jobs Pending

Jobs Endless

Jobs Done

View All

View Last Day

View Last Hour

Hide Successful

Retry

Cancel Job

Clean all

Source	Start	Stop	Status	Primary Description
11 - C	15:00:00	-	Failed!	MXF EV5 - E:\XStream\EV5 XStream 2006_07_09 14h58m38s10 - 11 C.mxf
11 - B	15:00:00	16:00:00	Successful	MXF EV5 - E:\XStream\EV5 XStream 2006_07_08 14h58m37s56 - 11 B.mxf
11 - B	05:00:00	06:00:00	Successful	MXF EV5 - F:\XStream\EV5 XStream 2006_07_08 04h58m37s54 - 11 B.mxf
11 - B	10:00:00	11:00:00	Successful	MXF EV5 - E:\XStream\EV5 XStream 2006_07_09 09h58m37s56 - 11 B.mxf
11 - B	15:00:00	-	Failed!	MXF EV5 - E:\XStream\EV5 XStream 2006_07_09 14h58m37s58 - 11 B.mxf
11 - B	05:04:00	06:04:00	Successful	MXF EV5 - E:\XStream\EV5 XStream 2006_07_09 05h02m37s54 - 11 B.mxf

In JOBS DONE use these filters to refine the selection:

View All View Last Day View Last Hour Hide Successful

'View all' displays all status since the start-up of the system.

'View Last Hour' and 'View Last Day' are both quick shortcuts to display the operation status related to the last hour or to the last 24 hours.

The 'Hide Successful' button helps you to bring out clearly the various errors occurring during a complete session.

In JOBS DONE, the following commands are available for:

Retry Cancel Job Clean all

'Retry': Select a job failed in the list and then press the 'Retry' button to retry the process.

'Cancel Job': Select one/several items in the list and press 'Cancel job' to delete all items in the list

'Clean all': press this button to clear all items in the list.

General

Jobs Selected

Jobs Pending

Jobs Endless

Jobs Done

Cancel Job

Job ID

40

Status

Successful

Name

TC IN

10:27:09.19

TC OUT

11:27:09.19

Duration

01:00:00

progress TC OUT

11:27:11.00

Recorded Duration

01:00:01

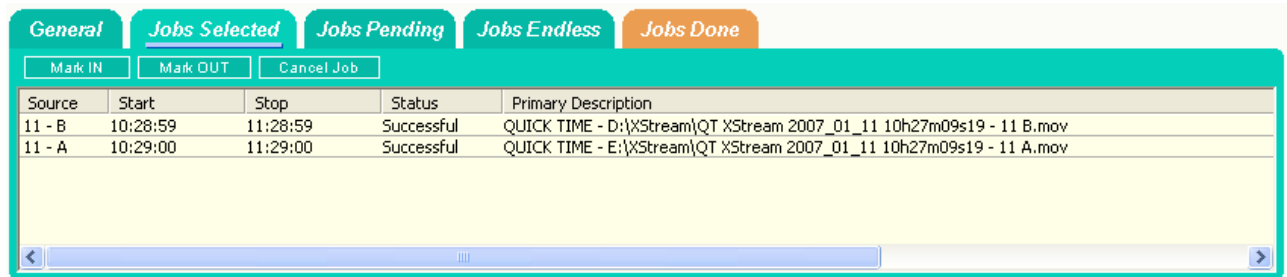
File Size

20 2 38

<

The GENERAL tab displays the information of the selected job in the grid or the selected retrain.

'Cancel Job': delete the selected job displayed in this field.



The JOBS SELECTED, JOBS PENDING and JOBS ENDLESS tabs give access to 'MARK IN', 'MARK OUT' and 'CANCEL JOB' commands which affect the items displayed in the lists. Several items can be selected at a time, so several jobs can be started or stopped or cancelled simultaneously.

CREATING/EDITING/MODIFYING A JOB:

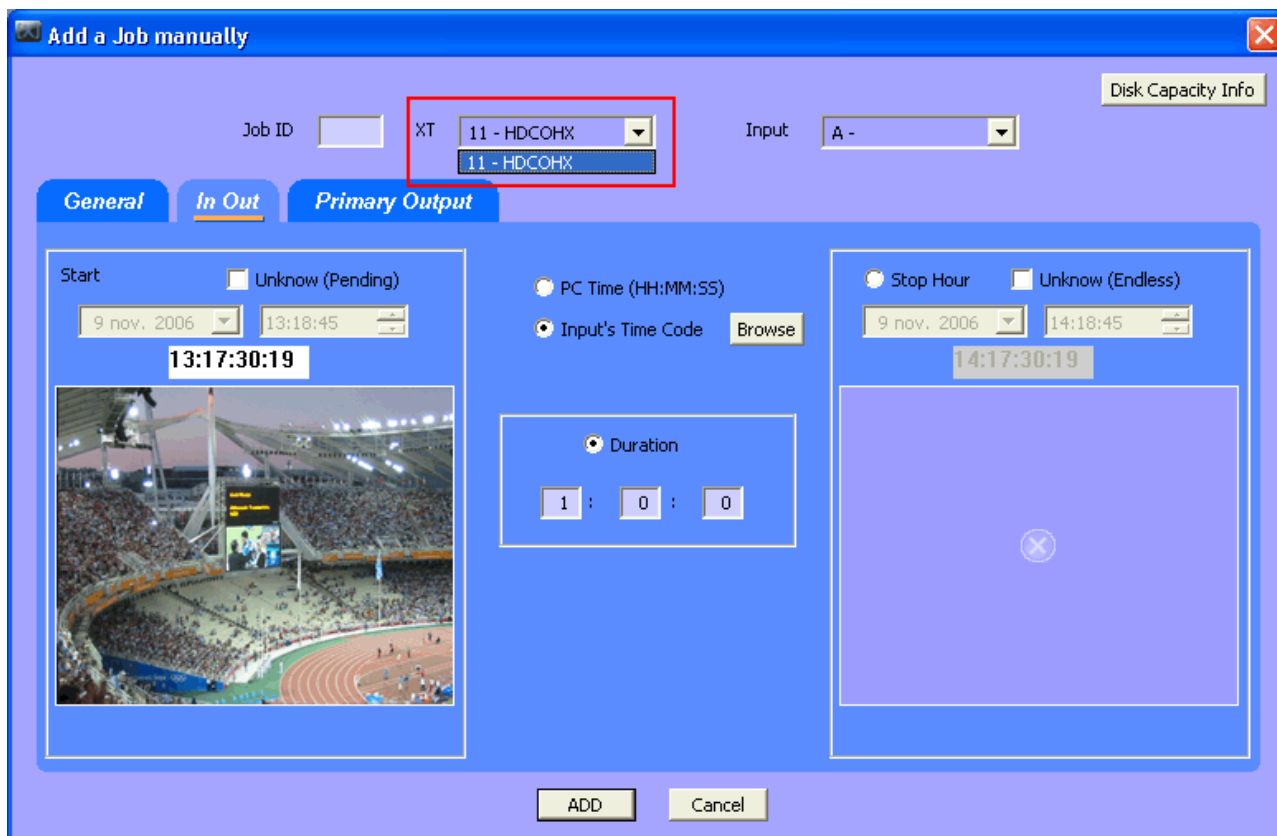
Create a NEW JOB by selecting EDIT from the top menu,



Or by clicking in the scheduler grid.

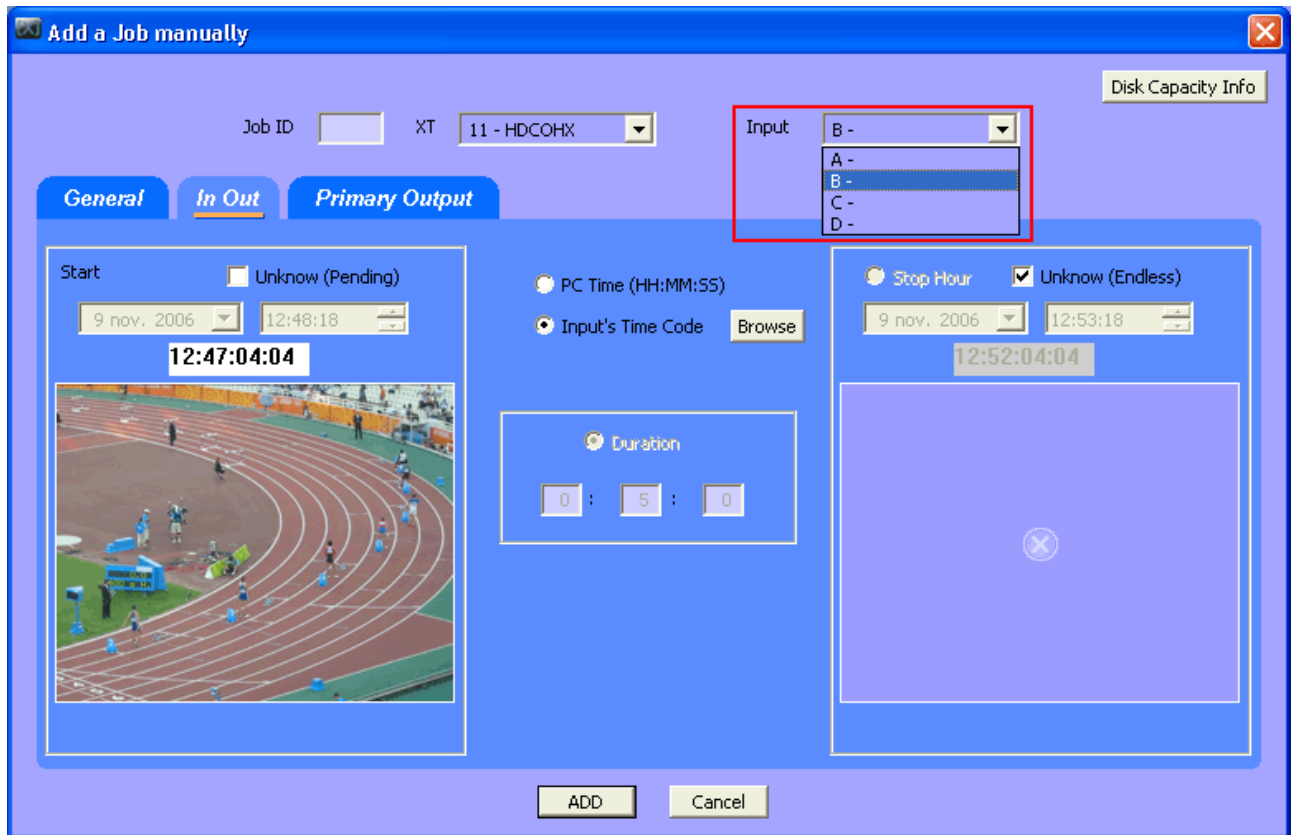
The following window appears to define the different parameters of the job.

IN/OUT TAB:



XT:

Select an XT from the drop-down list. All systems connected to XNet are displayed in the list.



CAM:

Selects the Recording INPUT on the XT server that is recording.

IN/OUT

Defines the starting time of the clip to be archived

PC TIME

Uses the PC clock to define the time (ensure the XStream's clock matches Time-Of-Day)

TIMECODE

Uses the recorders TIMECODE to generate the clip.

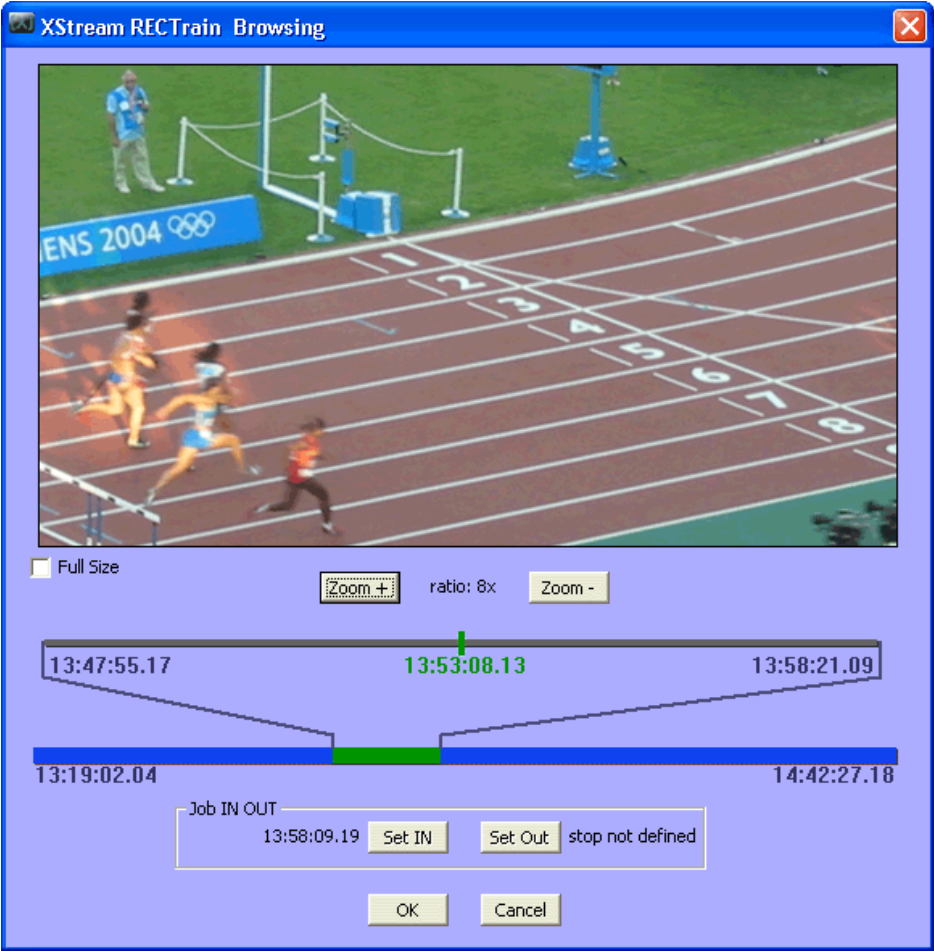
DURATION:

defines the duration of the current clip if IN or OUT point is not set.

BROWSE

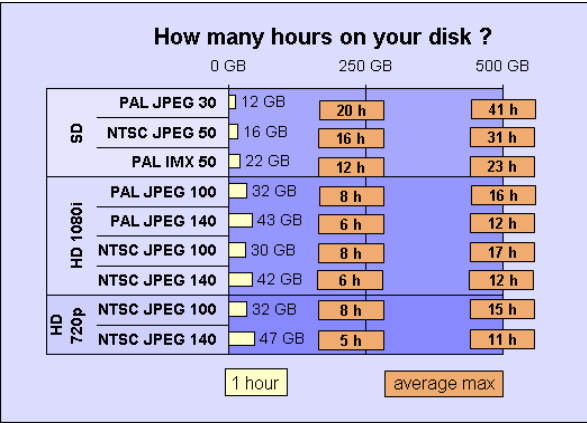
Allows you to locate the starting point by reviewing the video.

Clicking on the **Browse** button opens a second window with preview.



Note :Prior to start recording files, check the disk capacity information by clicking **Disk Capacity Info**.

A diagram displays the disk capacity required according to the different video standards and bitrates.



GENERAL TAB:

The screenshot shows a Windows-style dialog box titled "Add a Job manually". At the top right is a "Disk Capacity Info" button. Below the title bar, there are three input fields: "Job ID" (empty), "XT" (a dropdown menu showing "11 - HDCOHX"), and "Input" (a dropdown menu showing "B -"). Below these fields are three tabs: "General" (selected), "In Out", and "Primary Output". The "General" tab contains a "Name" label followed by a text box containing "016 NYG DAL", and a "Priority" label followed by a dropdown menu showing "Normal". The dropdown menu is open, showing "Normal" and "High Priority" options. At the bottom of the dialog are two buttons: "ADD" and "Cancel".

This tab defines the NAME of the clip/file to be made and the PRIORITY level to assign to the current job.

Example of Name: 01G NYG DAL

01 = Week1 G = GAME

NYG = New York Giants (HOME TEAM)

DAL = Dallas Cowboys (AWAY TEAM)

PRIMARY OUTPUT:

The screenshot shows a Windows-style dialog box titled "Add a Job manually". At the top right is a "Disk Capacity Info" button. Below the title bar, there are fields for "Job ID" (empty), "XT" (dropdown menu showing "11 - HDCOHX"), and "Input" (dropdown menu showing "B -"). Below these are three tabs: "General", "In Out", and "Primary Output" (which is selected and highlighted). The "Primary Output" tab contains two main sections. The first section, "Select the Output Format:", has four radio button options: "EVS MXF" (selected), "IMX OP1a", "Transfer to AVID TM", and "Quick Time". The second section, "Output Parameters:", contains two text input fields. The "Path" field is set to "D:\XStream\" and has a "Browse" button to its right. The "Filename" field is set to "01G_NYG_DAL_PB00A_1A_2006Sept10". At the bottom of the dialog are two buttons: "ADD" and "Cancel".

OUTPUT FORMAT:

4 different output formats are available to save the files: EVSMXF, IMX OP1a (without metadata), direct transfer to Avid Transfer Manager. (if installed), and Quick Time.

PATH:

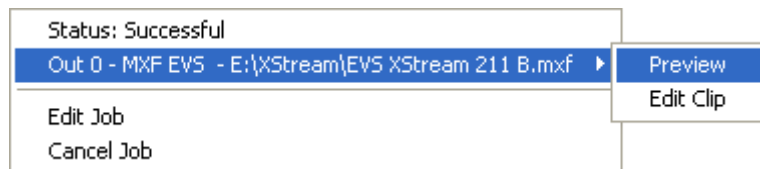
Manually select/modify the path for this recording to the correct folder/disk.

FILENAME:

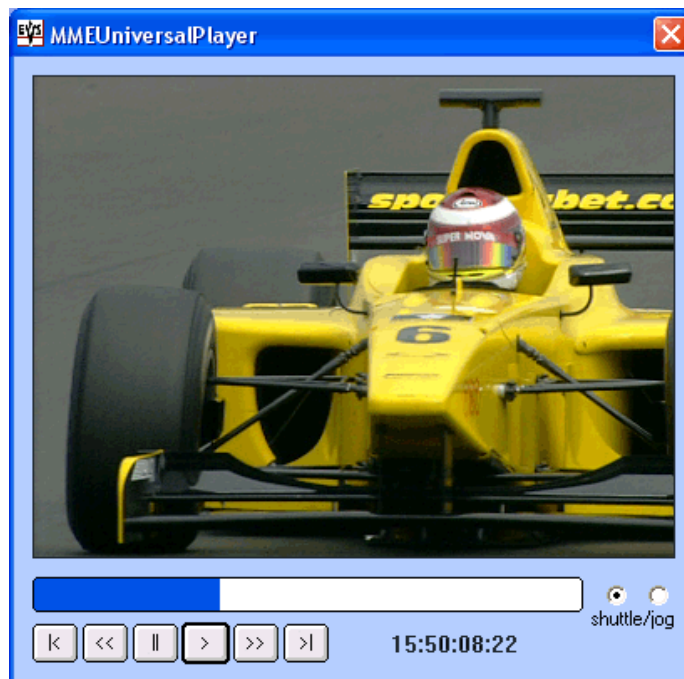
Defines a logical filename for this file, so it can easily be found on your disk/system.

PREVIEW CLIP:

When selecting a file/clip in the grid, use the right-button of the mouse to access the selection menu and select PREVIEW:



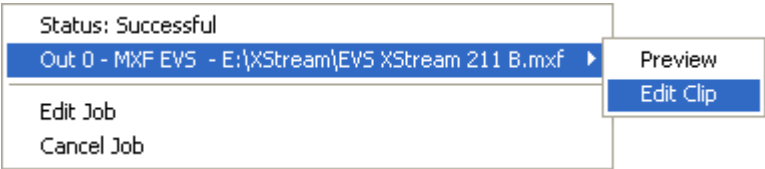
Use the command buttons to play back the clip, to search material, to review the clip frame by frame, etc.



Note: The MME player plays back the clip from the IN point to the OUT point.

EDITING A FILE/CLIP:

When selecting a file/clip in the grid, use the right-button of the mouse to access the selection menu and select EDIT CLIP:



The 'XFile Edit clip' window appears. The first tab shows all current data of selected file.



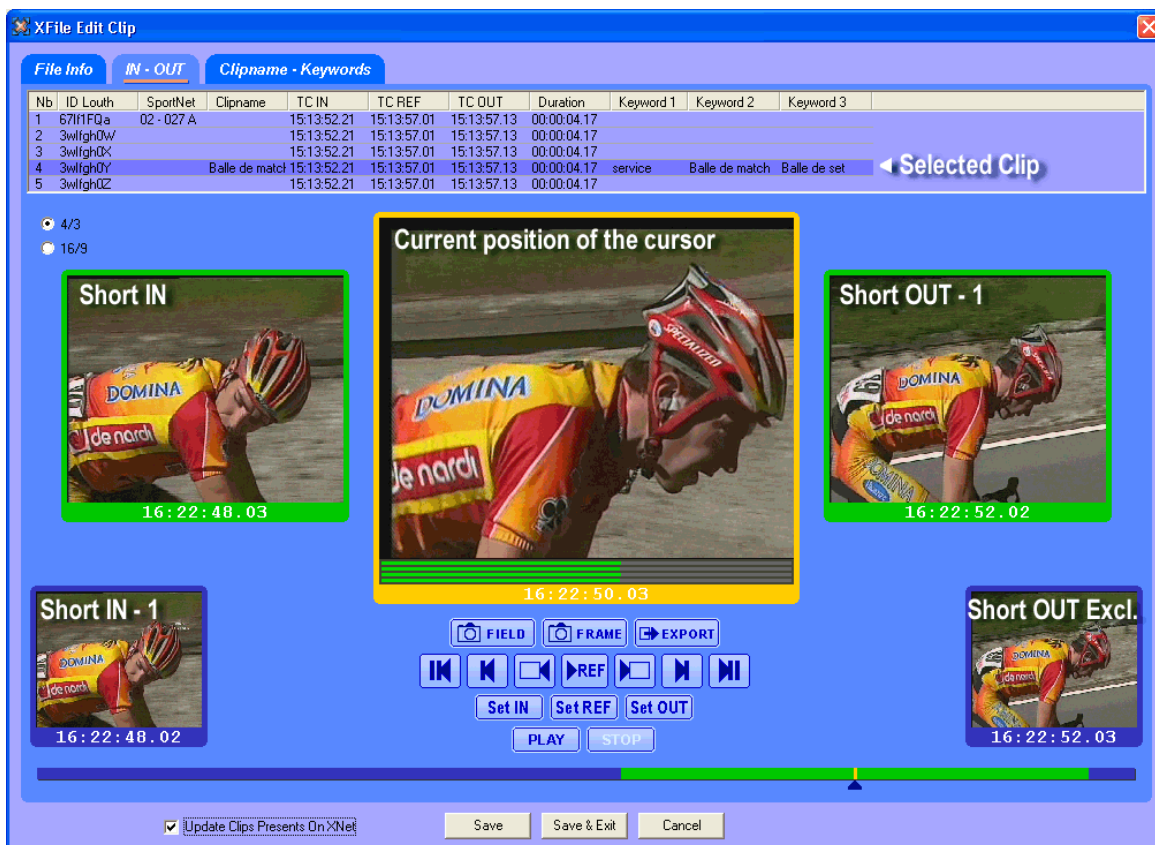
The list box in the right area displays all clips saved in a common MXF file. Use the   buttons to make a copy of a selected clip or to delete a clip into the MXF file.



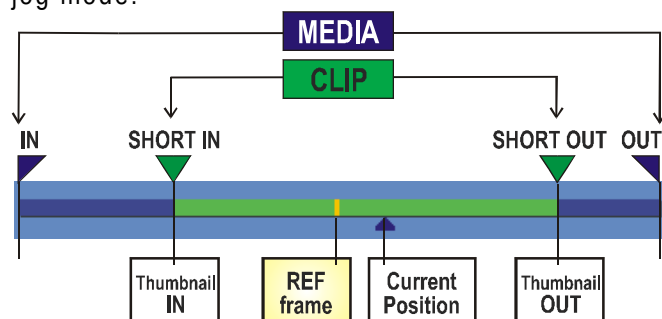
Important Note: The MXF doctor software is integrated to the Edit clip

module. When editing a clip with a corrupted file index, the system automatically detects the error, notifies the user and starts the repair process. A progress bar appears in the file info tab while repairing the file.

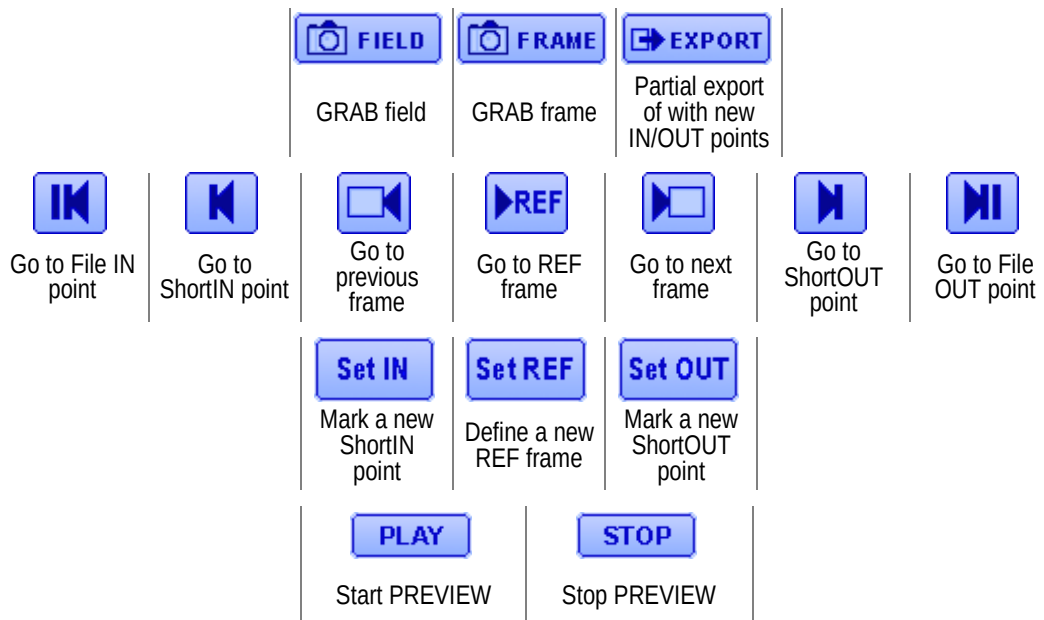
To modify shortIN and shortOUT points, to define a REF frame or to modify the aspect ratio, select the IN-OUT tab:



The timeline in the bottom of the window allows you to search the clip in jog mode:



The first line gathers the GRAB & EXPORT functions. The second line of buttons gathers the SEARCH functions and the third line of buttons gathers the commands which modify the clip. The last line gathers the PREVIEW functions:

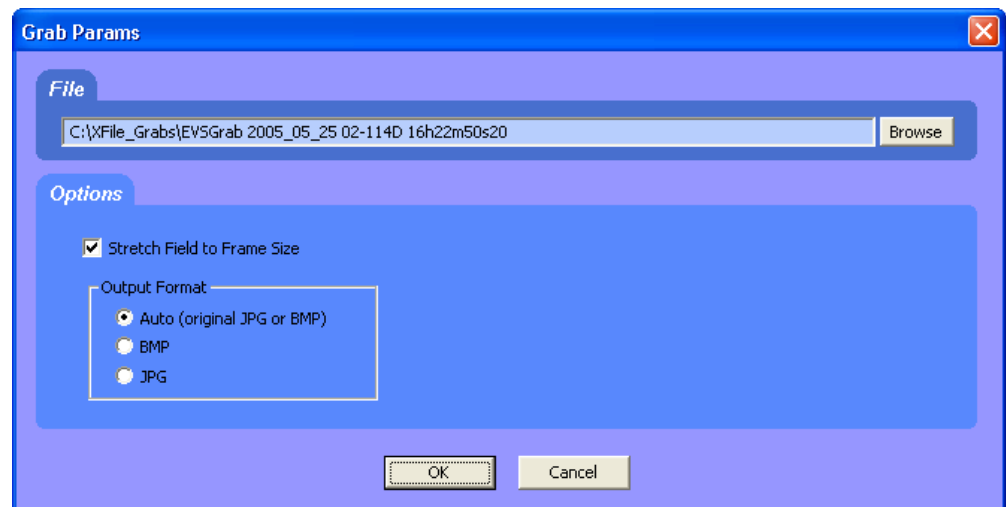


To modify the ID louth, to modify or to add a ClipName or keywords, select the Clipname-keywords tab:

GRAB option:



From the Edit Clip module, the operator can select one image in the main window (current position of the cursor) and press the Grab Field or the Grab Frame button to open the following dialog box:



File

Select the filename and the destination folder to save the JPG/BMP files.

Options:

Stretch field to frame size

Enabling this option will automatically stretch the 'field image' to the original 'frame size'

Output format

The automatic selection of the output format depends on the previous option. If the images are not modified by stretching the JPG format is defined and if the images are modified by stretching the BMP format is selected. The user can force the selection of one format.



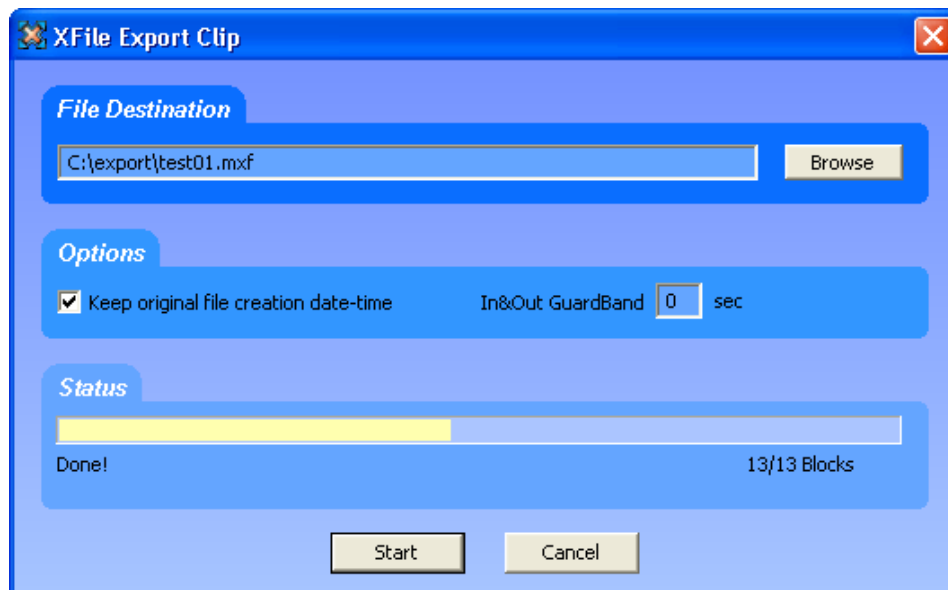
Note: No compression artifact is added to this file creation process, so the original quality of the image is kept.

EXPORT option:



A portion of clip can be extracted from its original clip and export to a different MXF file. In this case a different UmID is assigned to the new clip.

When the shortIN and shortOUT points of the new clip are defined, press the Export button to open the following dialog box:



File destination

Select the filename and the destination folder to save the new MXF file.

Options:

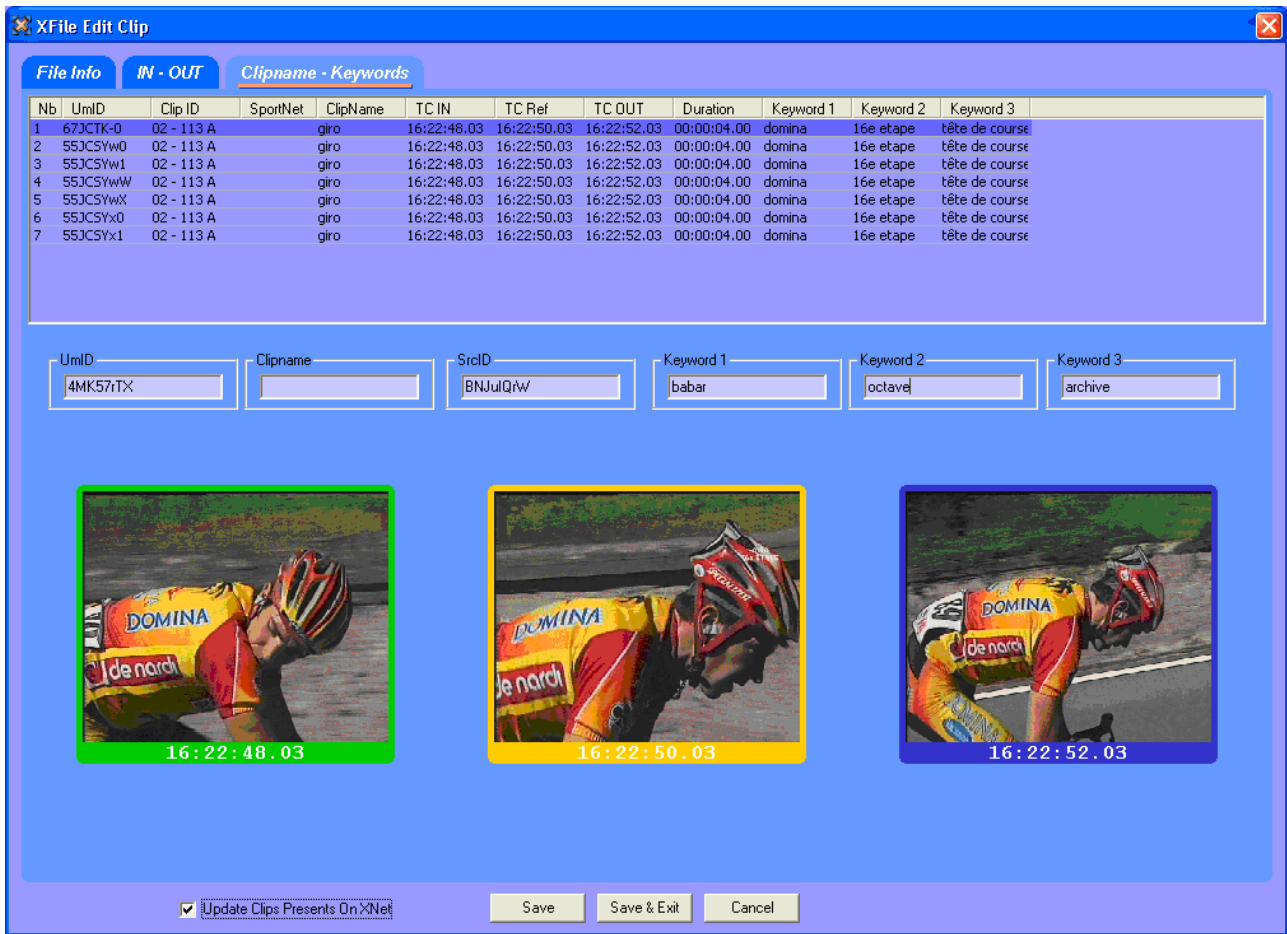
Keep original file creation date-time

Enabling this option will keep the creation date-time of the original clip even if the UmID is re-defined.

Guardbands

Define the duration of A/V material before and after the shortIN/ShortOUT points.

Press the START button to create the new file.



Select a clip in the list and then enter the new clipname or new keywords in the related field. The new clipname/keyword is updated in the upper list.



Important note: All clips edited in the 'XFile Edit Clip' module are updated on the XFile/XStream disks but a few of them can be also present on the XNet. If those clips need to be updated at the same time, place a checkmark in the following box:

☒ Update Clips Presents On XNet

The machine and position of the clip on the XNet are displayed in the XNet column:

XNet
02 - 027 A

When editing an HD clip, a third tab is added to the Editclip module in

order to play back the clip with full quality preview in a larger view.



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Notes

Headquarters

EVS Broadcast Equipment - Liege Science Park - 16, rue Bois St-Jean - 4102 Ougrée - **BELGIUM**

Tel-: +32 4 361 7000 - Fax-: +32 4 361 7099 - Tech. line-: +32 495 284 000 - Marketing-: marketing@evs.tv

Technical support-: support@evs.tv - Recruitment-: jobs@evs.tv - Corporate & Investors relations-: corpcom@evs.tv

Sales and Support Offices

NORTH AMERICA & LATIN AMERICA

EVS Broadcast Equipment Inc - 9 Law Drive, Suite 200 - Fairfield, NJ 07004-3233 - **USA**

Tel-: +1 973 575 7811 - Fax-: +1 973 575 7812 - Tech. line-: +1 973 575 7813 - usa@evs.tv

ASIA & PACIFIC

EVS Broadcast Equipment Ltd - New Victory House, 15th Floor - 93-103 Wing Lok Street, Sheung Wan - **HONG KONG**

Tel-: +852 2914 2501 - Fax-: +852 2914 2505 - Tech. line-: +852 94 01 23 95 - sales@evs-asia.com.hk

EVS Broadcast Equipment - Canway Building, Rm.702A - 66 Nan Li Shi Lu - Beijing - **CHINA**

Tel-: +86 10 6808 0248 - Fax-: +86 10 6808 0246 - Tech. line-: +86 139 1028 9860 - evschina@evs.tv

EUROPE, MIDDLE EAST & AFRICA

EVS Belgium s.a. - Liege Science Park - 16, rue Bois St-Jean - 4102 Ougrée - **BELGIUM**

Tel-: +32 4 361 7000 - Fax-: +32 4 361 7099 - Tech. line-: +32 495 284 000 - sales@evs.tv

EVS France s.a. - 32-36 rue de Bellevue - 92773 Boulogne Billancourt CEDEX - **FRANCE**

Tel-: +33 1 46 99 9000 - Fax-: +33 1 46 99 9009 - Tech. line-: +33 1 46 99 90 08 - france@evs.tv

EVS Italy s.r.l. - Via Milano 2 - 25126 Brescia - **ITALY**

Tel-: +39 030 296 400 - Fax-: +39 030 377 8945 - Tech. line-: +39 334 63 11 493 - italy@evs.tv

EVS Broadcast UK Limited - Kingfisher House - 21-23 Elmfield Road - Bromley - Kent BR1- 1LT - **UNITED KINGDOM**

Tel-: +44 (0)20 8315 6551/2 - Fax-: +44 (0)20 8315 6560 - Tech. line-: +44 7768 792 217, +44 7973 317 414 - uk@evs.tv

